

REMARKS

Amendments to the Claims

Support for the amendments to the claims can be found in the originally filed application. Specific support for the amendments to claim 1 can be found in pages 17 to 18 of the original disclosure.

New claim 72 is based upon content of original claims 1, 22, and 29.

Objection to the Claims

Claims 2 and 30 are objected to for the recitation of “substituted” in the claims ‘without a specific definition as to the meaning of this term.’

Applicants disagree. On page 5 of the original disclosure, the term “substituted” is defined as meaning a hydrogen group is replaced, or substituted, by another chemical element or group. The text referenced in the objection, wherein only two examples are provided for a substituted styrene wherein methyl and ethyl groups are substituted at the para-position, those skilled in the art reading the full paragraph would appreciate that any substitution of a hydrogen on the styrene would be permissible and is within the scope of the presently disclosed invention.

35 U.S.C. § 103 over Nomura

Claims 1, 2, 5, 8, 10, 11, 13, 16, 19, 22, 23, 27, 29, 30, 34-37, 39, 42, 45 have been rejected under 35 U.S.C. § 103 as being obvious over Nomura (EP 472344) in view of Chino (US 6372855). This rejection is respectfully traversed for the following reasons.

Nomura is directed to a thermoplastic elastomer material wherein rigidity, toughness, and impact resistance are the desired characteristics of the material. This is achieved by the addition of a clay-polyamide composite being blended with an elastomer – transforming the elastomer from a flexible material to a material that is defined as more thermoplastic than elastomeric. This is further evidenced by Nomura repeatedly referring to the material as a thermoplastic resin (see page 12), and the failure to teach the inclusion of any curing/crosslinking

agents for the material. The material taught by Nomura is distinct and different from the recited curable elastomeric nanocomposites recited by Applicant.

The rejection seeks to use Chino to cure the deficiencies of Nomura. In the rejection, the teachings of Chino regarding how to graft onto the polymer chain are stated as “should be similar” to that of Nomura, and it would have been obvious to either modify Nomura as taught by Chino or use the polymers of Chino in Nomura. Applicants respectfully disagree.

First, Chino teaches grafting onto the polymer to improve the affinity of the elastomer with carbon black or silica; neither of which are used or taught by Nomura. Thus, it is questionable that one skilled in the art would seek out the teachings of Chino at all to modify Nomura.

Second, it is also suspect if one skilled in the art would seek to use the polymer of Chino in Nomura. Nomura is seeking a thermoplastic material to be used in impact resistant conditions, and the elastomer used in combination with the polyamide-clay composite is of a different type than that taught by Chino. There is no certainty that the modified butyl rubbers of Chino would provide Nomura with the properties desired by Nomura.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. Graham v. Deere

Other than the fact that both disclose a modified elastomer with a desired improved abrasion resistance, there is no motivation to combine these teachings. Nomura is directed to a rigid thermoplastic resin comprising clay, while Chino is directed to modifying a highly saturated elastomer of limited double bonds to obtain an improved affinity for carbon black or silica. Due to the divergent starting materials and nature of the filler materials, one skilled in the art would not be motivated to seek out Chino to further modify Nomura.

In sum, there is no suggestion or motivation to combine the references, and limited expectation of success.

As Nomura in view of Chino fails to establish *prima facie* obviousness of the invention as recited in the rejected claims, it is respectfully requested that the rejection be withdrawn.

35 U.S.C. § 103 over Chino

Claims 1, 2, 5, 8, 10, 11, 13, 16, 19, 20, 22, 23, 29, 30, 34, 35, 37, 39, have been rejected under 35 U.S.C. § 103 as being obvious over Chino (US 6372855) in view of Ajbani (US 6759464). This rejection is respectfully traversed for the following reasons.

Neither alone, nor in combination, do Chino or Ajbani teach a curable elastomeric nanocomposite comprising a styrene-olefine elastomer as recited. Nor do they teach the use of a peroxide initiator to functionalize the monomers in the elastomer.

To establish *prima facie* obviousness, there 1) must be some suggestion or motivation in the art to modify or combine the references; 2) must be a reasonable expectation of success and 3) the combined references must teach or suggest all the claim limitations. Graham v. Deere. Herein, the combined references fail to teach or direct those skilled in the art to obtain the recited invention. Most particularly, the combined references fail to teach or suggest all of the claimed limitations.

As Chino in view of Ajbani fails to establish *prima facie* obviousness of the invention as recited in the rejected claims, it is respectfully requested that the rejection be withdrawn.

In light of this amendment, all of the claims now pending in the subject patent application are allowable. Thus, the Examiner is respectfully requested to allow all pending claims.

If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated, since this should expedite the prosecution of the application for all concerned.

Respectfully submitted,

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Date

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